WeatherTRAK®

OptiFlow User Guide

Included in Guide:

- Comissioning Process
- Programming Instructions
- Site Configuration

HydroPoint®

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Overview

In today's world, an ever increasing number of irrigated sites are faced with the challenge of managing restrictive water windows due to drought mandates, agency restrictions, or off-hours watering requirements. The widespread implementation of high-efficiency sprinklers, drip irrigation, and other new technologies compounds the challenge even further due to the increased runtimes required to deliver the proper amount of water to the landscape. These new irrigation delivery methods, coupled with shrinking water windows, present water managers with a constant struggle to reliably maintain optimal plant health while minimizing labor time.

Features and Benefits

WeatherTRAK OptiFlow, an optional add-on to the WeatherTRAK Central service, is a simple solution that takes the effort out of managing water windows. OptiFlow enables all of your controllers to share information in the cloud using WeatherTRAK's built-in cellular radios. Each controller is then given daily instructions for optimizing how, when, and where watering takes place inside your water windows, based on your schedules and, of course, the weather.

Using your site's maximum water flow potential and keeping things running as close to capacity as possible, water is delivered where it's needed within the time available. Users define their own water windows, station priorities, and flow hydraulics, and then WeatherTRAK OptiFlow does the rest. In addition, faults and issues are detected in real time to minimize site disruption, expense, and waste.

Benefits of OptiFlow

- Reduce water window times by automatically maximizing flow rates across the site

- Improve plant health by ensuring watering is optimized even during hot weather spikes

- Save valuable time and man-hours with trusted, automated water window management

- Stay in compliance and optimize irrigation runtimes to best fit within restrictive water windows

- Improve watering with high-efficiency sprinkler technology while effectively maintaining a smaller water window

- Reduce energy costs by decreasing irrigation pump runtimes

Over-the-Air Updating

Controllers that have been upgraded to OptiFlow will receive subsequent firmware updates through the network, and all controllers will be updated simultaneously.

HydroPoint will announce the firmware updates to customers.

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WeatherTRAK OptiFlow Commissioning Process

To ensure a site's success, WeatherTRAK OptiFlow requires a commissioning process. The commissioning process includes three simple phases:

Assess ➡ **Install** ➡ **Optimize**

WeatherTRAK OptiFlow Commissioning Phases

Phase	Goal	Documented Report
1. Assess	Assess site hydraulic and controller requirements	WT OptiFlow Site Assessment Report
2. Install	Managed or turnkey physical installation, programming, and learned flow Existing sites with a large number of controllers may need a transition plan to minimize downtime	WT OptiFlow Controller Installation Report
3. Optimize	Optimize flow rates and verify coverage based on actual site conditions	WT OptiFlow Flow Optimization Report

The full process is detailed in the WeatherTRAK OptiFlow Commissioning Process document available at hydropoint.com.

Phase 1: Assess

The goal of the Site Assessment phase is to determine site requirements including the site's irrigation pipe infrastructure, water window and landscape requirements as well as any other site-specific requirements.

In this phase, the person doing the assessment should also validate that the site's irrigation system is in good working order. If the irrigation system has issues, such as leaks or breaks, the issues should be resolved before completing the site assessment.

This site assessment can be completed by **gathering the information listed below**, or by completing the WeatherTRAK OptiFlow Site Assessment Survey form in an app on your mobile

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device. The online form is the fastest and easiest way to complete the required site assessment.

1. Number of water sources

2. Number of mainlines

   a. Which water source is each mainline using
   b. Pipe material and size of mainline
   c. Is mainline uniform size or does it vary in size

3. Number of flow sensors / master valves (POC)

   a. Pipe size, flow sensor
   b. Master valve models and size
   c. Normally Open or Normally Closed
   d. Which mainline

4. Number of controllers

   a. Which mainline is each controller on

Note: Grouped controllers can only share one mainline, but can be on multiple flow zones.

Phase 2: Install

After the site assessment is complete and the Site Assessment Report is provided, you can upgrade your controllers to OptiFlow and/or install new controllers.

Note: Only WeatherTRAK OptiFlow XR, WeatherTRAK OptiFlow XR 2-Wire, WeatherTRAK ET Pro3 and WeatherTRAK ET Pro3 2-Wire controllers can be upgraded to use WeatherTRAK OptiFlow. The full installation process is detailed in the WeatherTRAK OptiFlow Commissioning Process document available at hydropoint.com.

The Installation phase includes the following steps:

1. Install OptiFlow enabled controllers

   a. Learn flow on each controller
   b. Make sure all active stations have a flow value, either learned or manually entered

2. Clear all alerts from the controller

3. Complete all programming

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Phase 3: Optimize

After you have installed all of your WeatherTRAK OptiFlow compatible controllers and you have completed the site assessment, the next phase is to optimize the site using the OptiFlow module.

During this phase, you use the WeatherTRAK OptiFlow Key (part # WTOF-KEY) and follow instructions to upgrade the controller to OptiFlow firmware. This upgrade also enables new functionality in WeatherTRAK.net. For installation instructions, refer to the Installation Guide that came with the OptiFlow Key.

After the OptiFlow Key is installed and synchronized with WeatherTRAK Central, the next step is to use WeatherTRAK.net to configure the site.

Note: After the OptiFlow has been properly configured for the site, the operator should verify that the general increase in flow rate has not affected the sprinkler coverage due to pressure loss.

Understanding the Components of OptiFlow

Before you set up your site for OptiFlow, it's best to make sure you understand the how all the components fit together.

Site

You configure the irrigation window for the site in the Site Settings. The site's irrigation window, along with each controller's program and water window settings, determine when your controllers are allowed to irrigate.

Irrigation Controllers

When you activate your WeatherTRAK controllers with HydroPoint Customer Support, the controllers are assigned to a site. You can have any number of controllers assigned to a site.

A controller that is assigned to its own mainline and POC is known as a "single" controller. Controllers that are configured to share a mainline with other controllers are known as "group" controllers. For mainlines with a group of controllers, the controller connected to the flow sensor and master valve is called the "manager" controller. The other controllers in the group on the same mainline are called "member" controllers. A summary of controller types is explained in the graph in Figure A.

Figure A

Controller Type	Definition
Manager Controller	A controller that is part of an OptiFlow group AND is connected to the flow sensor and master valve An OptiFlow group is made up of two or more WeatherTRAK OptiFlow enabled controllers that share mainline.
Member Controller	A controller that is part of an OptiFlow group
Single Controller	A controller that is assigned to its own mainline and POC

Water Source

The Water Source is the top level of the "hydraulic tree" in OptiFlow. A site must have at least one Water Source, but it can have multiple water sources. The Water Source must be flow optimized, but a Managed Point of Connection (a flow sensor and master valve) is separate from the Water Source. The Water Source is used to centralize hydraulic and electrical optimization across the entire hydraulic tree.
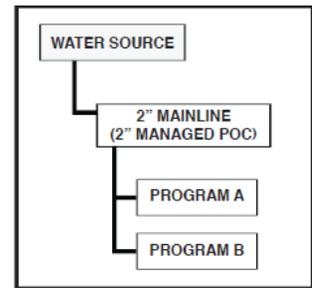
If your site gets water from a metered source, the water meter is identified as the Water Source.

In OptiFlow, you assign a Max Flow Rate to a Water Source.

Managed Point of Connection (POC)

A Managed Point of Connection consists of a flow sensor, master valve and optional pump start. The master valve can be either normally open or normally closed.

Mainline

Mainlines are the water delivery pipelines that supply water from the Water Source to the valve manifolds. Mainlines are typically managed by one or more Managed Points of Connection. It's also possible for a Mainline to have no flow sensors. Mainlines can be uniform or varying in size.

A Mainline provides water to one or more Flow Zones.

In OptiFlow, you assign a Max Flow Rate to a Mainline.

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Flow Zone

A Flow Zone is used for complex site where flow rates need to be managed on laterals, pipe size changes or elevation changes. Flow Zones can have sub-Flow Zones. If you have a mainline that varies in size, you can create a Flow Zone to represent a section with a different size of pipe.

In OptiFlow, you assign a Max Flow Rate to a Flow Zone.

Programs

Programs belong to the controller that they were created on. Each program can have its own water window. Stations are assigned to a program. In OptiFlow, you assign programs to the appropriate pipe, Mainline or Flow Zone, in the hydraulic tree.
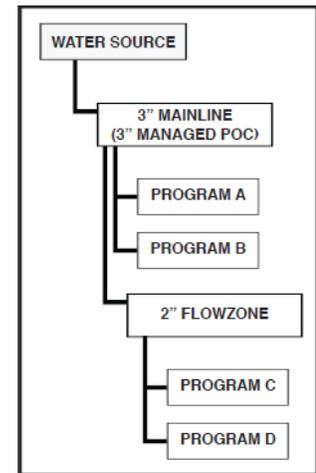
Preparing the Controller for OptiFlow

Warning: Programming can be completed from the controller BEFORE the upgrade. However, after the controller has been upgraded to OptiFlow, programming can only be done from WeatherTRAK.net.

1. Complete all controller programming.

2. Log into WeatherTRAK.net.

3. Click the **Smart Irrigation** tab, and then click the **Program** sub-tab. Make sure the controller that you want to program displays in the controller field at the top of the page.

4. Configure all program settings from the Program page including settings in the Setup, Flow, Days and Times, Station and Custom Crop Coefficient categories.

Determine Whether OptiFlow Is Installed on the Controller

WeatherTRAK controllers with OptiFlow have WeatherTRAK firmware version 8 or higher. The WeatherTRAK version can be seen on the controller on the third screen of the HELP menu.

1. Press the HELP button

2. Press the →button until WEATHERTRAK VERSION displays. The firmware version number displays on the lower line.

If OptiFlow is not installed, follow the instructions in the OptiFlow Key Installation Guide to complete the upgrade.

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Input Flow Rates for All Stations

To optimize watering in OptiFlow, each station must have a flow rate assigned. If you have a flow sensor installed, you can learn the flow rates for each station. If no flow sensor is installed, you need to estimate the station flow rates and enter them.

To learn flow with an installed flow sensor

Note: If you **have not updated** the controller to OptiFlow, refer to the instructions for learning flow in the controller's User Manual.

If you **have updated** the controller to OptiFlow:

1. Log in to WeatherTRAK.net.

2. Click the Smart Irrigation tab

3. Click the Learn Flow sub-tab. Make sure the controller that you want to learn flow on displays in the controller field at the top of the page. If not, use the drop-down menu to select the desired controller.

4. Click the Help icon in the Manage Flow Learning heading row.

5. Follow the instructions to learn flow on the stations.

To Estimate Station Flow Rates without an Installed Flow Sensor

The following methods are available for estimating station flow rate without using a flow sensor. The methods are described below in order of accuracy.

Water Meter Method

The water meter method uses a site's built-in flow sensor, a water meter. If the water meter is not dedicated to irrigation or if there are multiple water sources feeding the mainline, this method is not ideal.

1. Look at the water meter register and write down the start reading.

2. Turn on a station for 5 minutes.

3. Look at the water meter register and write down the end reading.

4. Subtract the start reading from the end reading.

5. Convert the reading difference to gallons.

6. Divide the reading difference by 5.

7. The resulting number is the station flow rate in gallons per minute.

8. Repeat from step 1 for all stations.

Counting Heads Method

The counting heads method uses the estimated flow per sprinkler head multiplied by the number of sprinkler heads to estimate the station flow rate.

1. Install or prepare a pressure sensor to measure the station's pressure.

2. Manually turn on a station.

3. Measure the pressure.

4. Count the number of heads on the station.

5. Determine the sprinkler head nozzle type. If there are multiple nozzle types, estimate the number for each nozzle.

6. Look up the sprinkler nozzle flow rate in GPM at the measured pressure.

7. Multiply the number of sprinkler nozzles by the nozzle flow rate.

8. Add up all the different sprinkler nozzle type flow rates.

9. The resulting number is the station flow rate in gallons per minute.

10. Repeat from step 1 for all stations.

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Station Valve Method

The station valve method calculates the maximum flow rate assuming the pipe is the same size as the valve, and the pipe type is Schedule 40 with water running at a velocity of 5 feet per second.

1. Determine the size of the station's valve.

2. Lookup the estimated flow rate in the table below.

3. The resulting number is the estimated flow rate in gallons per minute.

4. Repeat from step 1 for all stations.

Valve Size	Flow Rate (GPM) (assume Schedule 40 pipe at 5fps)
1/2"	5
3/4"	8
1"	13
1-1/2"	31
2"	51
3"	113
4"	196
6"	445

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Clearing Alarms at the Controller

Flow and electrical alerts can be cleared from the Alerts menu while in Maintenance Mode.

The following flow alerts can be cleared: Mainline Break, Station Break, Master Valve Fault, Advanced Leak, Station High Flow, Station Low Flow, and No Flow.

1. Press **ALERTS** on the controller.

2. Press ➲ to go to the **View Flow Status** screen.

3. Press the * button to clear all active flow alerts.

The following electrical alerts can be cleared: Valve Short, Valve Overcurrent and Valve No Connect.

1. Press **ALERTS** on the controller.

2. Press ➲ to go to the **View Valve Status** screen.

3. Press the * button to clear all active electrical alerts.

Running the Valve Test at the Controller

The WeatherTRAK valve test checks the electrical status of all valve solenoids on active stations (it excludes off stations and stations higher than the number of max active stations). The valve test takes about 5 seconds to start and runs about 1/2 second per station. The valve test is performed while in Maintenance Mode.

1. Press **MANUAL / TEST** on the controller.

2. Press the + or – button to select **Valve Test**.

3. Press ➲ to go into the Valve Test sub-menu.

4. To start the valve test, press the * button.

After the valve test is complete, users can scroll through the list of stations to see each station's electrical status. Options include Valve Short (SH), Valve OverCurrent (OC) and Valve No Connect (NC), and Not Applicable (NA).

Because pumps starts do not draw much current, only short and overcurrent conditions are checked. If there is no high current issue, the pump start station will show not applicable (NA).

Unlocking the Controller

After the WeatherTRAK ET Pro3 and WeatherTRAK ET Pro3 2-Wire controllers have been upgraded to OptiFlow, the controllers' UI will be locked. This programming lock prevents untracked changes to settings and manual irrigation from the controller.

Note: When you unlock a controller, irrigation is suspended on that controller and on all controllers in the Controller Group while the controller is in Maintenance Mode.

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To unlock the controller from WeatherTRAK.net

1. Log into WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **unlock controller** sub-tab.

3. Choose the **Site** where the controller is located from the Site field at the top of the page.

4. In the **Site Controllers** list, find the controller that you want to unlock. Click and drag the controller to the **Maintenance Mode** box.

5. Click the **Manage** button next to Action Required. The **Configure for Maintenance Mode** box displays.

6. In the **Hours to Unlock** column, you can leave the default of 2 hours or click the drop-down arrow and select another length of time from the list.

7. Click **Unlock**. The controller will be unlocked for the specified amount of time.

To unlock the controller from the WeatherTRAK Mobile 2 App

1. Log in to the WeatherTRAK Mobile App 2.

2. Click **Unlock** from the main menu.

3. Select the **Site** and **Controller**.

4. Select the duration of time by tapping on the specified number of hours.

5. Tap the **Unlock** button. The controller will be unlocked for the specified amount of time.

To unlock the controller from the controller

1. Unlock the controller using either WeatherTRAK Central from the OptiFlow / Manage page or using WeatherTRAK Mobile App under the unlock function.

2. From the RUN menu, press the ➲ to go to the Maintenance Mode screen.

3. Enter the unlock code using the up and down arrow keys. The controller will be unlocked for the specified amount of time.

Extending the Maintenance Time for a Controller

1. Log into WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Unlock Controller** sub-tab.

3. Choose the **Site** where the controller is located from the Site field at the top of the page.

4. In the **Maintenance Mode** box, click the **Manage** button. The Controllers in Maintenance Mode box displays.

5. Click **Add 1 hour** in the Add More Time column. The extra time will be added to the Time Left in Maintenance Mode column.

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Taking a Controller out of Maintenance Mode

1. Log into WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Unlock Controller** sub-tab.

3. In the **Maintenance Mode** box, next to **Unlock**, click the **Manage** button. The Controllers in Maintenance Mode box displays.

4. Click the **Lock** button. The controller is removed from the Maintenance Mode box.

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Configuring OptiFlow for a Site

OptiFlow uses your site's maximum water flow potential to operate your irrigation system as close to capacity as possible. OptiFlow optimizes how, when, and where watering takes place inside your water windows, based on your schedules and the weather.

In order for the system to perform this optimization, you need to define your water windows, station priorities, and flow hydraulics.
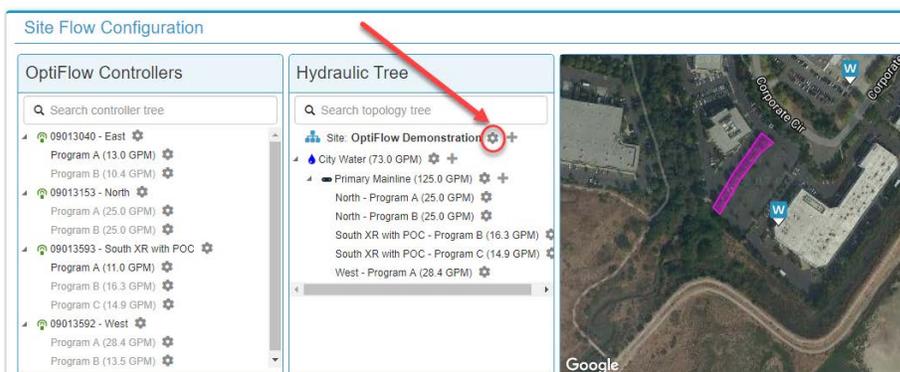
Configure the Site Settings

In Site Settings, you set up the site's time zone, the water window, and the backup schedule in case the controller loses communication.

Water Window Considerations

- The site's irrigation window, along with the water window configured in each program on the controller, determine when your controllers can irrigate.

- The maximum duration for a site's irrigation window is 22 hours.

- Controllers whose individual program water windows are outside of the site's irrigation window will be truncated to the site's water window.

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. Click the Gear icon ⚙ next to the site under the hydraulic tree.

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5. In the pane that displays on the right, click the **Edit Site Settings** button.
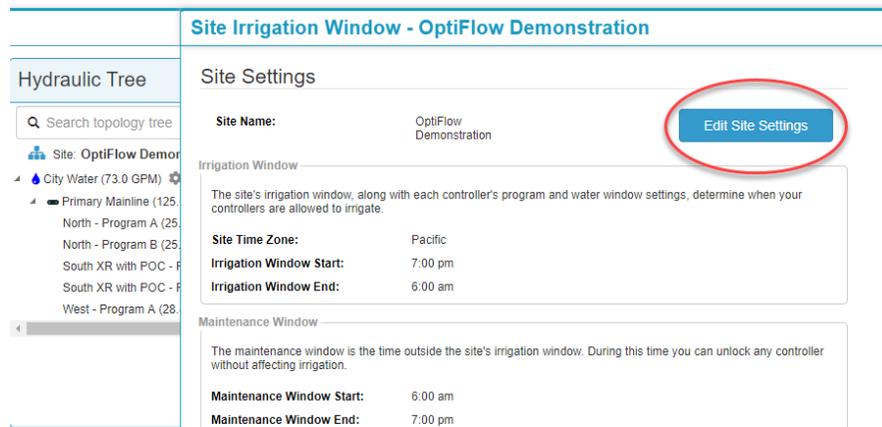
6. Complete all the fields, and then click **Save**.

Configure the Site Hydraulics Tree

The next step in the process is to configure the site's hydraulic tree. This is the site's irrigation piping infrastructure.

Note: After configuring the site's hydraulic tree, be sure to check irrigation pressure in the "worst case" lateral or lateral with the largest pressure loss due to pipe length, flow rate, or other factors such as increased elevation. When increasing flow rates in an irrigation system, the overall pressure loss will increase due to the hydraulics of pipe and fittings.
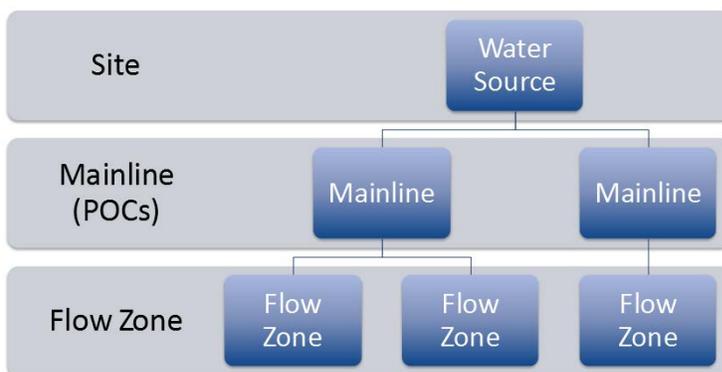
Create a Water Source

All sites must have at least one Water Source, but there is no limit to the number of Water Sources. A Water Source feeds one or more Mainlines and can be a canal or a water meter.

1. Log in to WeatherTRAK.net.

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2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. Click the **+** symbol next to the **site** under the **Hydraulic Tree**. The Add New Water Source pane displays on the right.

5. In the **Name** field, type a descriptive name for the Water Source.

6. (Optional) Use the fields in the **Max GPM Calculator** box to help estimate the maximum flow rate from the water source:

    c. In the **Material** field, click the drop-down arrow and select the pipe material from the list.
    d. In the **Size** field, click the drop-down arrow and select a value for the the pipe size.
    e. In the **Velocity** field, type the designed water velocity (typically 5 feet per second).
    f. Click **Apply**.

7. Type a value in the **Max GPM** field or click the **Apply** button to use the recommended value from the Max GPM Calculator.

8. Click **Save**.

Create a Mainline

A Mainline represents the water delivery pipelines that supply water from the Water Source to the valve manifolds. Only Mainlines can be assigned managed Points of Connection (POC) i.e., flow sensors, master valves (either NO or NC), and an optional pump start. Mainlines can have one or more managed POCs including looped POCs. Mainlines cannot have sub-Mainlines, but can have sub-Flow Zones.

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, find the Water Source that you want to add a Mainline to.

5. Click the **+** symbol next to the desired Water Source. The Add New Pipe pane displays on the right.

6. In the **Type** field, click the drop-down list, and then select **Mainline**.

7. In the **Name** field, type a descriptive name for the Mainline.

8. (Optional) Use the fields in the **Max GPM Calculator** box to help estimate the maximum flow rate from the Mainline:

    a. In the **Material** field, click the drop-down arrow and select the pipe material from the list.
    b. In the **Size** field, click the drop-down arrow and select the pipe size from the list.
    c. In the **Velocity** field, type the designed water velocity (typically 5 feet per second).

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    d. Click **Apply**.

    e. In the **Mainline Break Velocity**, type the velocity that would indicate a break in this Mainline.

    f. Click **Apply**.

9. Type a value in the **Max GPM** field or click the **Apply** button to use the recommended value from the Max GPM Calculator.

10. Type a value in the **Mainline Break Threshold** field or click the **Apply** button to use the recommended value from the Max GPM Calculator.

    Note: The Max GPM cannot exceed the Water Source Max GPM.

11. Click **Next**. The Flow Alerts settings display.

12. Review the default values in the Flow Alert settings, and make changes as needed.

- Mainline Break: If the flow rate in a Mainline exceeds the mainline break threshold that was set in the Pipe Details section, the controller sends an alert, and shuts down irrigation after the amount of time indicated in the delay field.

- No Flow: You can configure the controller to send an alert or ignore the fact that there is no detected flow in the Mainline. Set the desired no flow threshold and the amount of delay time.

- Advanced Leak: You can configure the controller to send an alert and close a normally open master valve if, during non-irrigation, the mainline flow rate exceeds the leak detect threshold for the user specified period of time. The controller will immediately close the master valve if the flow rate from the leak exceeds the catastrophic leak threshold.

13. Assign a POC or click **Save**.

Assign a Point of Connection

1. In the Edit Mainline Detail / Pipe Details pane, select the POC from a drop-down list. The list of available POC's is automatically detected based on the controllers installed.

2. In the **Master Valve Mode** field, click the drop down arrow to select the mode.

3. In the **Master Valve Override** field, perform one of the following actions:

- To exclude a POC from a Master Valve Override, select **Excluded**.

- To include a POC from a Master Valve Override, select **Included**.

4. In the **Pump Station** field, click the drop down arrow to assign a number.

5. In the **Flow Sensor Mode** field, click the drop down arrow to select **OFF** or **ON**.

6. Click the **Save & Add POC** button.

Create a Flow Zone

A flow zone is an optional flow management tool and it is typically used manage flow requirements on laterals, pipe size changes, or elevation changes. Flow zones can have sub-Flow Zones. Flow Zones are used to represent complex hydraulic requirements.

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, find the water source or mainline that you want to add a flow zone to.

5. Click the **+** symbol next to the desired water source/mainline. The Add New Flow Zone pane displays on the right.

6. In the **Type** field, click the drop-down list, and then select **Flow Zone**.

7. In the **Name** field, type a descriptive name for the Flow Zone.

8. (Optional) Use the fields in the **Max GPM Calculator** box to help estimate the maximum flow rate for the Flow Zone:

    a. In the **Material** field, click the drop-down arrow and select the pipe material from the list.
    b. In the **Size** field, click the drop-down arrow and select the pipe size from the list.
    c. In the **Velocity** field, type the designed water velocity (typically 5 feet per second).
    d. Click **Apply**.

9. Type a value in the **Max GPM** field or click the **Apply** button to use the recommended value from the Max GPM Calculator.

Note: The Max GPM cannot exceed the parent Water Source or Mainline Max GPM.

10. Click **Save**.

Assign Controller Programs

WeatherTRAK OptiFlow optimizes irrigation runtime using both the site's hydraulic configuration and controller(s) electrical constraints of up to 8 simultaneous stations. In order to properly optimize flow, controller programs are assigned to either configured Mainlines or Flow Zones. All stations within the program are independently optimized.

Note: All stations in a program must share the same hydraulic configuration. For example, they must all be on the same Mainline. If stations do not share the same hydraulic configuration, then the stations must be split into different programs and each program must be assigned to the appropriate hydraulic zone.

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Controller & Programs** list, click on the controller or individual controller program that you want to assign to a mainline or flow zone.

5. Drag the selected item onto the appropriate hydraulic zone, either a Mainline or Flow Zone.

Note: If any station within the program exceeds the hydraulic zone's max GPM capacity, that station will not irrigate. This type of error can quickly be seen by comparing the max GPM in a program to the max GPM of the hydraulic zone (the max GPM is the GPM number in parentheses to the right of the item).

Prioritize Stations

Use the station priority setting to make sure that your high visibility and high traffic zones run first and lower impact zones, like drip, run later.

1. Log in to WeatherTRAK.net.

2. Click the **Smart Irrigation** tab, and then click the **Program** sub-tab.

3. Scroll down to the **Stations** heading. If the section is collapsed, click the + to expand it.

4. In the **Priority** column of the Stations table, set a priority for each station.

   - The following priority levels are available:

     - Highest

     - High

     - Normal (default)

     - Low

     - Lowest

   - The stations with the highest priority run first.

5. Scroll to the bottom of the page and click the **Save & Send** button.

Add a Water Source, Mainline, or Flow Zone to the Map

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, find the Water Source, Mainline, or Flow Zone that you want to add to the map.

5. Click to select the Water Source, Mainline, or Flow Zone.

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6. Click the **Edit** checkbox in the upper-right corner of the map, and then click **Add Pipe to Map**. A highlighted square displays on the map.

7. Click and drag the square to the appropriate location.

Note: You can reposition the map by clicking and dragging. You can zoom in and out by clicking the + and – buttons.

8. Click and drag the handles on the square to change the shape to represent the area covered by the Water Source, Mainline, or Flow Zone.

9. Click the **Edit** checkbox to save the changes to the map and close the edit mode. The area that you highlighted displays on the map. Click in the highlighted area to display a label with the name of the Water Source, Mainline, or Flow Zone.

Remove a Water Source, Mainline, or Flow Zone from the Map

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. Select the Water Source, Mainline, or Flow Zone that you want to remove from the map by performing one of the following options:

   - In the **Hydraulic Tree** list, click to select the Water Source, Mainline, or Flow Zone.

   - On the map, click to select the Water Source, Mainline, or Flow Zone.

5. Click the **Edit** checkbox in the upper-right corner of the map, and then click **Remove Pipe from Map**. The highlighted area is removed from the map.

6. Click the **Edit** checkbox to save the changes to the map and close the edit mode.

Making Changes to the OptiFlow Configuration

Editing the Site Settings

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. Click the Gear icon ⚙ next to the site under the hydraulic tree. The Site Settings Window displays.

5. Click the **Edit Site Settings** button.

6. Make changes as needed in the fields, and then click **Save**.

7. Close the Site Details pane by clicking **Close** in the upper-right corner.

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Editing Water Source Settings

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, scroll or search for the Water Source that you want to edit.

5. Click the ⚙ icon next to the name of the Water Source. The Water Source Details pane displays.

6. Click **Edit Water Source**.

7. Make changes as needed in the fields, and then click **Save**.

8. Close the Water Source Details pane by clicking **Close** in the upper-right corner.

Editing Mainline/Flow Zone Settings

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, scroll or search for the Mainline or Flow Zone that you want to edit.

5. Click the ⚙ icon next to the name of the Mainline or Flow Zone. The Mainline Details or Flow Zone Detatils pane displays.

6. Click **Edit Mainline** or **Edit Flow Zone**.

7. Make changes as needed in the fields, and then click **Save**.

8. Close the Mainline Details or Flow Zone Details pane by clicking **Close** in the upper-right corner.

Changing Program Settings and Assignments

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Configure** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list, scroll or search for the Mainline or Flow Zone where the program that you want to change is assigned.

5. Click the ⚙ icon next to the program name. The Program Details pane displays.

6. Perform any of the following tasks.

   - Remove the program from its assigned location – click the Remove Program from Pipe button.

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- Change the number of stations that can run at one time – Click the drop-down arrow in the Max Simultaneous Stations field, and select a different number from the list.

- Change the priority of a station -- In the Stations in Program table, find the station that you want to change. In the Priority column, select a different priority from the drop-down list.

7. Click **Save**.

8. Close the Program Details pane by clicking **Close** in the upper-right corner.

Managing the Site Schedule

Review the Performance Indicators for the Site

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Optimize** sub-tab.

3. Select the appropriate site from the drop-down list.

4. Review the performance indicators at the top of the page.

- Total Gallons

- Schedule Efficiency

- Start Time

- End Time

- Duration

View the Detailed Schedule

- 5 minute increments

- Total GPM

- Station specific visibility

- Actual Schedule Queue

- View at any level of site topology

  - Site

  - Water Source

  - Mainline

  - Flow Zone

  - Controller

  - Program

Change Water Windows

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Optimize** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list on the left side of the page, expand or collapse the levels to display the programs that you want to change water windows for. In the program rows, the water windows are represented by blue bars.

5. Position the cursor at the left or right end of the water window that you want to change.

6. Click and drag the water window bar to the new start/end time, and then release the cursor.

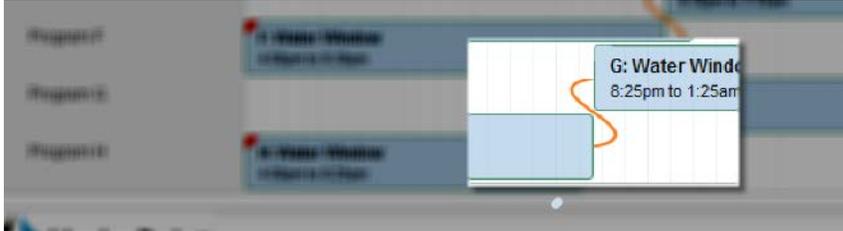7. To save your changes, click the green **Save/Apply** button in the upper-left of the page.

Stack Programs

When you stack a program, you are telling the system that the second program cannot start until the first one has finished.

1. Log in to WeatherTRAK.net.

2. Click the **OptiFlow** tab, and then click the **Optimize** sub-tab.

3. Select the appropriate site from the drop-down list.

4. In the **Hydraulic Tree** list on the left side of the page, expand or collapse the levels to display the programs that you want to stack.

5. In the program rows, adjust the water windows so it makes sense to stack the programs.

6. Position the cursor at the left end of the water window for the program that you want to stack. A circle displays.

7. Position the cursor on the circle. Click and drag to the circle that displays at end of the water window for the program that you want to stack. Release the mouse button. A curved line displays to indicate that the stacking was successful.

8. To save your changes, click the green **Save/Apply** button in the upper-left of the page. To remove program stacking simply double click on the curved line.

Validate Your Changes

To re-optimize the site, click on the blue **Optimize** button.

Review the Optimization

Verify station coverage especially on stations with long runs

- Check each station's irrigation pressure and / or sprinkler coverage at design capacity

    – Design capacity is max flow rate for that section of pipe.

    – Which stations checked and how checked (pressure sensor or visual inspection)?

Glossary

OptiFlow	WeatherTRAK OptiFlow
Water Source	• A Water Source is the source of water that must be flow optimized but is not controlled by a managed point of connection (a flow sensor and master valve). There is a minimum of one water source per site, but can have multiple. • For sites with large water sources that span multiple mainlines • Multiple water sources available per site • Groups a site's mainlines • Centralize hydraulic and electrical optimization across entire hydraulic tree and electrical capacity of controllers • Assign Max Flow Rate per Water Source

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Mainline	• Mainlines are the water delivery pipelines that supply water from the Water Source to the valve manifolds. Mainlines are typically managed by one or more Managed Points of Connection
	
	• Ability to assign one or more managed POCs to a mainline
	   – Flow Sensor, Master Valve and Optional Pump start
	      • Master Valve can be either normally open or normally closed
	
	• Systems with both a main flow sensor and master valve and sub-mainlines with separate flow sensors is not currently supported. OptiFlow can still optimize schedules for these systems, but flow sensors and master valves must either be on the main or sub-main.
	
	• Assign a max flow rate per mainline

Flow Zone	• A Flow Zone is used for complex site where flow rates need to be managed if you have a mainline that varies in size, you can create a Flow Zone to represent a section with a different size of pipe. • Typically manage flow requirements on laterals, pipe size changes or elevation changes • Flow zones can have sub-flow zones • Assign Max Flow Rate per Flow Zone
POC	Point of Connection is connection from an external water source, such as a water agency's water meter to the site.
Managed POC	A managed point of connection is a point of connection managed by a flow sensor, master valve and optional pump start.

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